

### Abstract of the Disclosure

A process for the measurement of the complex impedance of a lead for an active implantable medical device, in particular a pacemaker, defibrillator and or cardiovertor. This process includes the steps of producing a stimulation pulse by the discharge on the lead (10) of a tank-capacitor (22) of the device (20), charged beforehand to a given voltage level; measuring the voltage variation ( $V(t)$ ) at the terminals of the tank-capacitor during the discharge; and determining the lead impedance ( $Z_s$ ) from the voltage thus measured. The measurement stage includes sampling at least three successive values of the voltage at the terminals of the tank capacitor, and the determining stage includes the separate determination of the resistive ( $R_s$ ) and/or capacitive ( $C_H$ ) components of the complex impedance of the lead from the aforesaid at least three sampled values of voltage thus obtained.